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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,567	09/12/2003	Kouji Saitou	12480-000021/US	5299
30593	7590	01/23/2006	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			HOLTON, STEVEN E	
		ART UNIT	PAPER NUMBER	
		2673		

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/660,567	SAITOU ET AL.	
	<b>Examiner</b> Steven E. Holton	<b>Art Unit</b> 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 12 September 2003.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-8 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-8 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 12 September 2003 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### *Drawings*

The drawings are objected to because of a misspelling in Fig. 3. The label 'Wright Data' should be 'Write Data'. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "storage means, which are connected to a source electrode drive circuit" of claim 3 and the "common electrode drive circuit has an electronic volume circuit incorporated therein" must be

shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The Examiner notes that the figures show implementations of the volume circuit as part of the source electrode drive circuit and the storage means connected to the common electrode drive circuit.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 4 and 5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims recite the inclusion of an electronic volume circuit incorporated within different drive units. The Examiner notes that volume circuit shown in Fig. 6 is merely an embodiment of how a volume circuit would be implemented in a source electrode drive circuit. No discussion of how a volume circuit would be incorporated within a common electrode drive circuit is provided. The specification lacks information regarding on using a volume circuit inside of a common electrode driver circuit. Further, the specification does not show how information read out from the storage device would interact with the volume control circuit. Would the data be used to change the values of the resistors? Would the values be used to change the source voltages? A High and Low output voltage circuit similar to the one in Fig. 6 is well known within the art for providing driving voltages to a liquid crystal display; however, one skilled in the art would be unsure how the data from the memory would be used within the device of Fig. 6 to alter the output voltage levels.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Yer et al. (USPgPub: 2002/0109655), hereinafter Yer.

Regarding claim 1, Yer teaches, an active matrix display device comprising, "storage means for storing optimum voltages each of which is applied to an electrode whose voltage waveform is intended to be shifted (Fig. 9, element 81a); and voltage applying means for reading out the optimum voltage corresponding to the display mode from the storage means and applying the read optimum voltage to the electrode whose voltage waveform is intended to be shifted (Fig. 9, elements 81b and 81c; paragraphs 40 and 63)."

Regarding claim 3, Yer teaches, "wherein: the storage means, which are connected to a source electrode drive circuit, store a plurality of voltages for shifting a voltage waveform of a voltage applied to the source electrode, respectively for the display modes (Fig. 9, element 81a, the memory, is connected to element 89, the source driver)."

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yer.

Regarding claim 2, Yer teaches all of the limitations except, connecting the storage means to the common electrode drive circuit.

The Examiner notes that changing the common electrode drive voltage based on driving mode is a common technique within the art applied to operating the device in a row inversion, column inversion, or other inversion techniques. At the time of invention it would have been obvious to one skilled in the art that it would be possible to use a storage means and voltage applying means to store the different voltage levels used for different drive modes as shown by Yer and applying the same structure to storing and applying different common voltages to a display device using an inversion driving technique. This would provide a device as specified in claim 2.

Regarding claims 6-8, the claims are drawn towards methods of determining the voltage to be applied based on a known voltage level and the amplitude swing of a voltage signal. Such a technique would be a logical arrangement for one skilled in the art. A periodic signal (such as the applied voltage to the LCD circuit) requires 4 specific parameters to define the signal: offset, amplitude, frequency and phase. In the case of

the voltages provided to the display driver, the system or operating clock defines the frequency and changes in phase do not affect the operation of a two level signal so they may be ignored. Thus, the voltages to be applied would be further calculated based on the amplitude (called the voltage width) and the offset voltage. Usually the offset is defined to the center value and the amplitude would define the difference from the center value voltage to a maximum or minimum voltage, but it would be logically obvious to one skilled in the art that the offset could be defined to a maximum or minimum value and the total amplitude (voltage width) could be used to calculate the remaining information for calculating the applied voltage signal. Thus, at the time of invention it would have been obvious to one skilled in the art that the calculation of the applied voltages could be performed based on information requiring an offset voltage defined to the lowest, highest or center value of the signal and an amplitude (voltage width) to define the swing or change of the voltage levels as the signal is applied.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Naito et al. (USPN: 6297791) discusses altering the common voltage level to reduce/remove flicker from a display device.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven E. Holton  
January 10, 2006  
Art Unit 2673



VIJAY SHANKAR  
PRIMARY EXAMINER